

ABSTRACT OF THE DISCLOSURE

A semiconductor device and package has a heat spreader directly disposed on the reverse surface of the semiconductor device. This heat spreader includes a diamond layer or a layer containing diamond and ceramics such as silicon carbide and aluminum nitride. The heat spreader is directly formed on a substrate for the semiconductor device. In particular, the heat spreader is composed of a diamond layer and one or two metal or ceramic members, which are bonded to the diamond layer with one or two polymer adhesive layers. This diamond layer has a fiber structure across the thickness or a microcrystalline structure. Cilia are formed on a surface of the diamond layer facing the one or two metal or ceramic members.